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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 119

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ARAB TELECOMMUNICATIONS ORGANIZATION ASSEMBLY OPENS IN RABAT

LD291312 Rabat MAP in English 1223 GMT 29 Apr 80

[Text] Rabat, April 29, (MAP)--The third ordinary general assembly of the Arab organization of telecommunications opened its works here Monday.

On this occasion, the Moroccan state minister of telecommunications, Mr Mahjoubi Aherdan, made a speech in which he pointed out that this meeting will allow the achievement of the organization's objective. "If we recorded great success since the meetings of At-Tayif in Saudi Arabia (1978) and of Tunis (1979), the Rabat meeting will allow us to start the phase of achievement and application, with the aim of launching the Arab satellite", he added. The Moroccan state minister also pointed out that, thanks to the joint efforts of Arab ministers, the organization's staff, experts and technicians, it was possible to overcome all the difficulties in order to satisfy the aspirations of Arab peoples. Mr Aherdan concluded his speech by wishing success to the assembly's works.

For his part, the chairman of the organization's second general assembly which was held in Tunis in 1979, Mr Brahim Khaouja (Tunisia), took the floor, underlining that the achievement of the organization's objectives is what the Arab peoples aspire for.

Mr Khaouja then evoked a number of points in the agenda, which are to be submitted to the assembly's third session for approval, precising that the major points are related to the construction of the Arab satellite, the financing of the organization's activities and the choice of a relay-control station.

Concerning this last point, Mr Khaouja underlined the necessity of making an immediate and definite choice of the country where this station will be built, so that this country will have it ready in due time.

Mr Khaouja concluded by exalting the efforts of the organization's administrative board which prepared the grounds for the success of this third general assembly.

After a rest period, the general assembly resumed its works behind closed doors, during which the Moroccan state minister of post and telecommunications, Mr Mahgubi Aherdan, was elected chairman of the third session of the general assembly.

This opening session was attended by many members of the Moroccan Government, the Arab ministers of post and telecommunications or their representatives, the members of the diplomatic corps accredited to Rabat, the representatives of the Arab League, the Union of Arab Radio Stations, the Arab League Educational, Cultural and Scientific Organization (ALESCO), as well as the representatives of the Arab Union of Telecommunications.

CSO: 5500

'MENA': EGYPT SUPPORTS NEW UNESCO INFORMATION SYSTEM

NC171258 Cairo MENA in English 1200 GMT 17 Apr 80

[Text] Paris, April 17.(MENA)--Chairman of the Radio and Television Broadcasting Federation 'Abd al-Ahad Jamal ad-Din asserted today Egypt's support of establishing a new scientific system for the flow of information to achieve equivalence between the developing countries.

In his speech before the International Conference for the Development of Communications, Jamal ad-Din said that the system is considered one of the legitimate demands of the Third World, supported by Egypt, and that this will be implemented through the framework of the United Nations scientific, educational and cultural organization, UNESCO.

Egypt has submitted a defined programme comprising the setting up of a bank for information within the framework of the UNESCO, organizing the use of satellites to serve mass communications in the developing countries.

The Egyptian programme also provides studying the possibility of establising a satellite network under the UNESCO to be used as symbolic payment as well as the establishment of an international center for training employees in the field of information.

The conference started its work at the UNESCO headquarters in Paris last Monday and is attended by delegations from a hundred member states of the organization.

CSO: 5500

AFGHAN ENVOY ASSAILS WESTERN MEDIA AT UNESCO CONFERENCE

LD191240 Moscow TASS in English 1203 GMT 19 Apr 80

["Information in the Service of Peace"--TASS headline]

[Excerpts] Paris, April 19, TASS--The general discussion has ended at the intergovernmental conference on cooperation and development of mass media, now in session at the UNESCO headquarters here. Information should serve the lofty aims of strengthening peace, detente, and international understanding, social, economic and cultural progress, and the cause of national liberation--such was the leitmotif of the speeches by representatives of socialist states and the overwhelming majority of developing countries.

"As a result of the victory of the national democratic revolution of April 1978 favorable conditions have been created in Afghanistan for developing and improving the system of education, science, culture, mass media and communications," it was stated by Sarvar Yurish, representative of the Ministry of Information and Culture of the Democratic Republic of Afghanistan [DRA]. "The government of Babrak Karmal," he said, "is devoting much attention to the development of mass media in the interests of peace, progress, detente and international understanding."

The head of the DRA delegation sharply condemned the psychological war unleashed by the Western mass media, the imperialist and Beijing hegemonists in collusion with some regimes in the given region against Afghanistan. "In pursuance of these aims the enemies of the people of Afghanistan have created a special system of radio stations to disseminate lies, slander and distorted information directed against revolutionary Afghanistan," he said. This slanderous propaganda campaign pursues the aim of covering up the acts of intervention by the imperialists and hegemonists against the Democratic Republic of Afghanistan. These subversive activities run counter to the acknowledged tasks of the mass media and contradict the aims of detente and peaceful coexistence, he said.

In their speeches representatives of the delegations of the Ukraine and Belorussia spoke about the disinterested assistance given by them to the training of national specialists for developing countries, to the drawing up and implementation of projects in the field of communications.

CSO: 5500

SOVIET-BUILT COMMUNICATIONS CENTER IN AFGHANISTAN INAUGURATED

LD232325 Kabul Radio in Dari to Europe 1730 GMT 23 Apr 80

[Text] A 15-kilowatt communications center was inaugurated in the Yaka Tute area this afternoon by Engineer Pir Mohammad Zayri, technical deputy of the Ministry of Communications. The center has already started work.

The center, which cost R120,000, is the grant-in-aid of the friendly country the USSR and (?its installation) was carried out by Afghan engineers and technicians and Soviet experts in 4 months--2 months ahead of schedule.

Before opening the center the deputy of the Ministry of Communications expressed thanks on behalf of the DRA Government and the Ministry of Communications, to the friendly and great neighboring country, the USSR, and appreciated the hard work of domestic and Soviet engineers in installing and activating the center.

A source of the Ministry of Communications said that the communications center with the power of 15 kilowatts has two channels--one telephone, and the other channel for four telegraphic channels, all of which can function simultaneously. The source said that this center with two of its double (?rhombic) antenna can work on [word indistinct] from 2 to 27.5 megacycles.

CSO: 5500

AFGHANISTAN MEDIA'S RELIANCE ON SOVIET MATERIAL REPORTED

BK191209 Hong Kong AFP in English 1131 GMT 19 Apr 80

[Text] New Delhi, 19 April (AFP)--The Afghan media has begun to rely more and more heavily on the Soviet Union since the last 3 weeks for diffusion of world news, according to the Indian news agency PTI today.

The agency, in a dispatch from its correspondent in Kabul, said the Afghan press, radio and television had been carrying only news items and commentaries supplied by the Soviet news agencies, TASS and the NOVOSTI PRESS AGENCY (APN) and the Russian radio and TV.

News from other international news agencies, like REUTER and AGENCE FRANCE-PRESSE (AFP), which were being distributed through the Afghan Government agency, BAKHTAR, had totally disappeared from the Kabul press, the agency said.

The reliance on the Soviet media began with the signing of the agreement on 25 March with the Soviet agency, TASS, for direct telex transmission of world news to BAKHTAR, it added.

BAKHTAR, which formerly carried Indian news supplied by PTI, now rarely utilised such items, PTI said.

The PTI correspondent reported that except for an "occasional odd correspondent or photographer from the Third World or the West, Kabul has a large number of mediamen from the Soviet Union, East Germany, Bulgaria and French communist newspapers."

Indian newsmen were treated "better than Western journalists" but not on the same footing with those of communist countries or journals, he added. While journalists from the noncommunist media and even Afghans were subject to body search before entering the government press conference hall, their counterparts from the communist world were allowed in freely, he noted.

The correspondent also reported an influx of Soviet TV films and radio commentaries in the cultural and educational fields into Afghanistan since the last month.

CSO: 5500

JAPAN, MALAWI SIGN LOAN AGREEMENT

Blantyre DAILY TIMES in English 11 Apr 80 pp 1, 4

[Text] The Minister of Finance, Mr. Louis Chimango, has said that Malawi attaches great importance to the development of both internal and international telecommunication links.

The Minister said this yesterday when he concluded signing a loan agreement for a sum of 472,821,515 Yen (approximately K1,560,311) to finance the installation of the International Gateway Telephone Exchange to be installed in Limbe shortly.

The Minister signed the agreement on behalf of the Malawi Government, while Mr. S. Shimizu, Associate Senior Vice-president, signed on behalf of Nippon Electric Company Limited of Japan.

In his speech after the signing ceremony, Mr. Chimango told the Associate Senior Vice-president that Malawi, under the leadership of His Excellency the Life President, Ngwazi Dr. H. Kamuzu Banda, attaches great importance to the development of both internal and international telecommunication links.

Mr. Chimango said the loan came at the right time to help improve the efficiency of services, in the face of a growth in the level of international telephone traffic which makes it impossible for the international telephone service operators to attend to all calls efficiently.

"With the planned increase in the channel capacity which will result from the installation of a Standard 'A' Satellite earth station now in progress, there is need to introduce International Subscribers' Dialing (ISD) to the rest of the world," said the Minister.

He said that once this service is introduced, international service operators will continue to give assistance to callers experiencing operational or language difficulties.

Mr. Chimango stated that when completed, the International Gateway Exchange will enable Malawi subscribers to call subscribers in most countries without the assistance of the international service operators. This will improve the efficiency of the international telephone service, since without the introduction of an ISD, the International Telephone Exchange service would have reached saturation point by the end of 1981 and if this happened, long delays on international calls would have been inevitable, he added.

The Minister, therefore, thanked the Japanese Government for the assistance it is giving Malawi for its telecommunication programme.

Speaking earlier, Mr. Shimizu said that his company has supplied similar systems to many customers both at home and abroad in more than 20 countries.

The loan agreement signed in the Ministry of Finance Conference Room bears an interest rate of 7 and half percent per annum on a reducing balance and is repayable over five years, following a two-year grace period.

This is the second loan to the Malawi Government from Nippon Electric Company Limited on telecommunication projects. The first loan was for the installation of a Standard 'A' Satellite Earth Station at Kanjedza in Limbe which is now in progress and is due for completion in March 1981.

Meanwhile, the Minister has said Malawi is most grateful to the Nippon Electric Company Limited of Japan for the assistance given, which will go a long way towards improving the telecommunications network between Malawi and other countries.

Mr. Chimango said this at a dinner he hosted at Causerie Restaurant here, in honour of the Associate Senior Vice-president of Nippon Electric Company Limited and his delegation.

The dinner followed the signing of the loan.

In his speech, Mr. Chimango said that once the International Gateway Telephone Exchange is installed, telephone users in Malawi will be able to dial direct to subscribers in most countries without calling on the services of international service operators.

He said that this did not, however, mean that Malawi will get rid of all such operators, but will retain them since they will remain useful to international callers who may experience operational or language difficulties.

Expressing the gratitude of the people of this country over the assistance given by the Japanese firm, Mr. Chimango assured the Senior Vice-president that the Malawi Government will honour all its obligations under the loan agreements concluded with his organisation.

"We, in this country, believe that once we have obtained loans, we must make sure that sufficient funds are provided in our budget to meet all loan repayments whenever they fall due," he told Mr. Shimizu, adding that he hoped his organisation will continue to give Malawi aid for projects aimed at developing this country.

In reply, Mr. Shimizu said that his organisation will continue to assist Malawi in its development programmes, especially in the field of telecommunications.

Mr. Shimizu said that with the installation of an International Gateway Telephone Exchange, Malawi will be able to communicate with other countries in the world. He thanked the Malawi Government for the warm welcome accorded to him and his delegation.

Also present at the dinner were two officials from the African Development Bank in Abidjan, Ivory Coast. The team is in Malawi on a duty mission on resource-based industries.

CSO: 5500

HANOI DELEGATION ATTENDS PARIS COMMUNICATIONS CONFERENCE

OW200919 Hanoi VNA in English 0722 GMT 20 Apr 80

[Text] Hanoi, VNA, April 20--A Vietnamese delegation led by Vu Quoc Uy, vice chairman of Vietnam's National UNESCO Commission, attended an inter-governmental conference in the field of communications held recently in Paris.

Speaking at the opening session to the week-long conference including representatives of some 100 members of UNESCO, Vu Quoc Uy, protested against the presence of the Khmer Rouge delegation representing a genocidal regime which had devastated a nation's culture and was ousted by the Kampuchean people. He stressed that this presence was completely incompatible with UNESCO's lofty objectives. Vietnam's viewpoint was then supported by delegates from Cuba, Laos, the Soviet Union, the German Democratic Republic and Mongolia. No one except the Chinese delegate pleaded for the Khmer Rouge delegation.

In his report Vu Quoc Uy summed up Vietnam's achievements in the building of its communications system in difficult conditions since the founding of the Democratic Republic of Vietnam in 1945, especially during the successive wars of resistance against foreign aggression, for national salvation, and in national reconstruction and defence at present.

He pointed out that with their own efforts and with precious assistance from fraternal and friendly countries and various international organizations, UNESCO included, the Vietnamese people have recorded many achievements in this field, which have helped introduce Vietnam's struggle to the outside world. Vu Quoc Uy further said that during the struggle for national independence and building a new life, Vietnam has always received strong support and sympathy from the world progressive people. "However", he stressed, "Vietnam has also been subjected to a policy of slanders aimed at disrupting its relations with other countries. This policy was camouflaged under the signboard 'Free Communications'". He appraised UNESCO's persistent efforts in helping developing countries to reduce the disparities between them and the developed countries. He said "The old international order still exists and is doing harm to hundreds of millions of people. We should heighten our vigilance and do our utmost to put an end, by one way or another, to the old world order ruled by the colonialists."

CSO: 5500

BRIEFS

ANGOLA, GDR TELECOMMUNICATIONS AGREEMENT--Berlin--The GDR and Angola are to deepen their cooperation in the postal and telecommunications fields. A government agreement just signed in Berlin regulates the establishment of stable and regular postal and telecommunications links between the two countries, including transit traffic, as well as questions of technological cooperation. [Text] [East Berlin ADN International Service in German 0843 GMT 24 Apr 80]

VIETNAM'S SOVIET-AIDED SATELLITE STATION--For the past 6 months, together with the Soviet experts, cadres and workers of 11 units subordinate to the Ministries of Construction, Communications and Transportation, and Coal and Electricity and the General Post and Telegraph Department have overcome numerous difficulties in completing the foundation and installing equipment and other support facilities for the construction of the ground satellite telecommunications station. To greet the birth anniversaries of Lenin and President Ho Chi Minh, they have made mutual pledges to complete all major projects of the station on schedule so as to make it possible for the country's central television station to relay Soviet television broadcasts on activities at the Moscow Olympics. [BK301221 Hanoi Domestic Service in Vietnamese 0400 GMT 20 Apr 80 BK]

'TASS,' 'SPK' COOPERATION AGREEMENT--An agreement on cooperation was signed in Moscow today between TASS and SPK, the Kampuchean news agency. It was signed by Losev, TASS director general, and Chey Saphon, SPK director general. [Text] [LD281416 Moscow Domestic Service in Russian 1330 GMT 28 Apr 80]

USSR DIRECT CALLS TO AUSTRIA--Vienna--Regarding our report on 24 April about the opening of a direct-dial telephone service with the USSR the Austrian Post and Telegraph Administration informs us that this service will only start on 10 May. Thus, it is as of that date that telephone subscribers in Vienna, Linz, Salzburg and Amstetten can reach parties in the Soviet Union connected to the direct-dial system without going through any telephone exchange. [Text] [AU251345 Vienna VOLKSSTIMME in German 25 Apr 80 p 2]

ROMANIAN AT COMMUNICATIONS MEETING--Bucharest, AGERPRES, 18/4/1980--The Romanian delegate to the Paris intergovernmental cooperation conference for activities, requirements and programmes regarding the development of communication, underlined the special role the mass media played in the promotion of a broad international understanding and collaboration in halting the worsening of current international situation, in resuming the course towards detente and peace in the world. In the address made during the conference he also pointed to the stringent necessity to intensify the efforts for building a new international economic and political order for bridging up the gaps between the developed and the developing countries. [Text] [AU182004 Bucharest AGERPRES in English 1750 GMT 18 Apr 80]

'TASS'-'MAP' AGREEMENT--Moscow, April 22, TASS--An agreement was signed here today between TASS and the Moroccan news agency MAGHREB ARAB PRESS (MAP) on cooperation in the field of dissemination of news and joint operation of communication lines. The new agreement provides for an expansion of cooperation between the two agencies which was based on an agreement concluded in 1965. In particular, provisions are made for the renting of a two-way communication line between Moscow and Rabat. The agreement was signed for TASS by Director General Sergey Losev and for MAP by Director General Abdelhalil Fenjiro. [Text] [Moscow TASS in English 1725 GMT 22 Apr 80]

CSO: 55[illegible]

BRIEFS

JAKARTA-SINGAPORE SUBMARINE CABLE--The director of technical operation of the telecommunication corporation said in Ambon, Maluku, on 15 April that the construction of submarine cable linking Jakarta and Singapore is nearing completion and a test had been conducted with satisfactory results. The construction of the submarine cable is an ASEAN telecommunication cooperation program in submarine cable network system which will be expanded to other ASEAN member countries in the future. The Jakarta-Singapore submarine cable was installed since February 1979. [Jakarta Domestic Service in Indonesian 2300 GMT 15 Apr 80]

CSO: 5500

BRIEFS

EARTH SATELLITE STATION--The director of technical operations of the telecommunications corporation has said that during the current third 5-year development plan, Indonesia plans to construct some 75 small-size earth satellite stations in 27 provinces in Indonesia. The construction of the earth stations is to improve reception of broadcasts beamed to rural villages in the context of intensifying development activities as a whole. [Jakarta Domestic Service in Indonesian 1200 GMT 16 Apr 80] To overcome telecommunications difficulties caused by topographical conditions in Aceh Province, seven small-size earth satellite stations will be built under the current third 5-year development plan. These stations will be built in Meulaboh, Tapaktuan, Blangpidi, Takingeun, Kutacane, Sinabung and Blangkejeren. [Jakarta Domestic Service in Indonesian 1200 GMT 21 Apr 80]

CSO: 5500

EARTH SATELLITE STATION TO BE COMPLETED AHEAD OF SCHEDULE

Kuala Lumpur BUSINESS TIMES in English 9 Feb 80 p 2

[Text]

THE $22 million earth satellite station at Lendu, Alor Gajah district, the second and biggest of its kind in the country, will be completed in early May ahead of schedule with the installation of a power system.

Site engineer Mr T. Imai of Mitsubishi Electric Corporation said yesterday in Malacca, the complex would be 100 per cent complete once the state government went ahead with the provision of a total commercial power system.

"Right now, we are temporarily using a generator for our needs," he said.

Mr Imai said progress of the project had been achieved at a pace exceeding original expectations and the complex was now about 95 per cent completed.

When fully operational, the station would have the latest equipment capable of providing Malaysia microwave links with at least 15 countries including the US and those in Europe via the Indian Ocean.

The 106-foot-high antenna was already in place and by the middle of next month the 350-foot-tall microwave tower would be ready, while the terrestrial communication link system would be set up by the end of next month.

Mr Imai said a complete and final test of the link system would be conducted from Sunday till Saturday next week.

The entire range of the equipment, some being used for the first time, was installed by Japanese engineers and technicians in stages when work began in the middle of last year.

Once the station began operations, it would be manned by a staff of about 70 Malaysians, 40 of whom would be qualified technicians.

The state government was expected to complete building an access road to the 20-acre site in a few months.

A Telecoms spokesman said Malacca was chosen as the site for the station in view of its ideal location, security-wise. — Bernama

CSO: 5500

BRIEFS

ERDENET TELEVISION--A few days ago the radio relay line linking Erdenet, the MPR's new industrial center, with Ulaanbaatar was commissioned. Television became available in Erdenet for the first time and viewers watched a direct relay of Mongolian television from the solemn meeting in Ulaanbaatar devoted to the 110th anniversary of Lenin's birth. The new line is the first section of a radio relay line which will extend to Olgiy City in the country's (?west). The line was built with Soviet assistance. [OW271601 Ulaanbaatar MONTSAME in Russian 1806 GMT 24 Apr 80]

CSO: 5500

NEW ZEALAND

PRESS ASSOCIATION TECHNOLOGICAL PROGRESS DETAILED

Wellington THE EVENING POST in English 21 Mar 80 p 4

[Text]

WAIRAKEI, March 20 (PA). — Achievements by the New Zealand Press Association during the past year matched the importance of its recently celebrated centenary, the chairman, Mr J A Burnet, said at the annual meeting here today.

Mr Burnet said in the past year NZPA, with the co-operation of the NZ Post Office, had converted its leased circuit transmission network to operate in the "high level" mode." This opened the way for sending news copy over the wire with full capitalisation, a major development in keeping with technological progress in the newspaper industry.

Another important communications development had been the introduction of a multiplex system between Sydney and Wellington, giving improved capacity for bringing international news into New Zealand, and also enabling NZPA, in conjunction with Reuters, to launch the Reuter Monitor Service in New Zealand.

Monitor, a sophisticated data system, gave banks and other users the ability to update foreign exchange quotations from all parts of the world within a few seconds, and would have beneficial effects on New Zealand's economy.

It was essential for NZPA to take advantage of all appropriate communications developments, not only for efficiency, but as one means of trying to contain costs.

CSO: 5500

POSTS MINISTRY OFFICIAL INTERVIEWED ON PROTECTION FROM ELECTROMAGNETIC POLLUTION

Beijing GUANGMING RIBAO in Chinese 30 Mar 80 p 2

[Article by a reporter of GUANGMING RIBAO]

> [Text] Protection from electromagnetic pollution is a newly developed problem in the field of environmental protection. Our reporter interviewed a responsible comrade of the Ministry of Posts and Telecommunications on this problem.

[Question] Recently, people in the world have paid attention to the problems of electromagnetic pollution. However, some of our readers still do not understand what this problem is. Would you please discuss this subject in a general sense?

[Answer] When we watch television, we see that a vivid picture on the screen is sometimes disturbed by black spots and sometimes is changed into wavy lines. Also, when we listen to the radio, we might hear a noise which sometimes interferes with the delightful music. These are examples of the phenomena where the normal electromagnetic environment is polluted by the interference of electric waves.

[Question] How dangerous is electromagnetic pollution?

[Answer] It not only affects human cultural life, but also disturbs industrial and agricultural production and national defense construction. It even threatens the security of an individual's life and property. For example, when an airplane is in the air, if the communication and navigational systems are disturbed, it may cause an accident due to the loss of communication with the ground bases. For a ship, if the communication and navigational systems and the frequency of the emergency call channel are disturbed, it will affect navigational safety. It could even result in the sinking of a ship.

Installations equipped with electric wires may also be disturbed by some electromagnetic waves. Thus, railroad signals might give wrong indications; traffic lights might go out of control; it could also lead to computer error and a breakdown in automated factory operations; even the air-raid warning system might deliver a false warning. An even more serious problem is the one of excessive doses of electromagnetic radiation, which not only causes interference of other electrical equipment, but also causes considerable damage to the human heart, eyeballs and blood.

[Question] Where does all of this interference come from?

[Answer] In general, there are two sources. The first source comes from natural interference, such as cosmic interference, thunder and lightning interference and sun-spot interference etc. The source of interference is man-made. The interference occurs because of poor management of radio frequency, or because of the poor quality of equipment. Here, let's talk about several common sources of interference caused by human factors.

1. The interference caused by the incorrect use of frequency: In order to avoid the mix-up of signals broadcast from different stations, each station according to the type of business is allocated a definite frequency range (i.e. frequency band). In recent years, our radio business has developed very fast. Various types of communication activity grow day by day. If we don't strictly use the proper frequency based on the frequency allocation chart and then add to that the lack of scientific standards at the locations where electromagnetic equipment has been installed, then it could result in confusion in the use of electric waves and create mutual interference between the communication industries.

2. The interference caused by frequency deviation: Because of the low quality of the equipment we use, or an operating problem we have, the electric waves generated by our transmitting equipment may be out of the permissible range of frequency deviation.

3. The interference caused by the stray emission of electric waves: For example, when a high-powered communication station is just turned on, there is no way that television sets in the area can receive the picture. Another example is where the antenna of the radar in an airport may seriously interfere with the radio sets within a certain perimeter.

4. The interference caused by the electrical equipment used in factories, scientific laboratories, hospitals and others: When an instrument such as a high frequency furnace, physiotherapeutic equipment, or a microwave oven is operated, the generated waves may transmit themselves in the form of radiation and conduction to the area surrounding the equipment and thus interfere with other electromagnetic equipment in the surrounding area.

[Question] How should we protect ourselves from electromagnetic pollution?

[Answer] First of all, we should strengthen the work on the theory and technological research for electromagnetic environmental protection. In recent years, a new field called "environmental-electromagnetic engineering" has come about. This is a science on the fringe of the following fields: engineering, medical science, economics, and sociology. The contents of this science include the study of how to technically take measures to prevent electromagnetic pollution; how to protect and improve the electromagnetic environment in which we live. With these studies, we can allow the various systems which can generate electromagnetic energy such as telecommunications, electronics, electric power and automatic control systems to coexist and develop together under the most reasonable conditions and economically.

If we want to effectively solve the interference problem, it is not enough just to take preventative measures from theoretical and technical points of view. The most important method is to strengthen legal control. We should provide effective supervision and management for radio frequencies and various electromagnetic devices.

Due to the interference and sabotage by Lin Biao and the "gang of four" in our country, at present, there still exists a definite anarchistic phenomenon within the radio field. In addition, our old system of management is unsuitable for our present needs. So the use of frequencies seems somewhat in disorder. Various interference is a common occurrence. If we don't pay special attention to this matter, the problem will become more serious from now on. At present, all of us in different kinds of industries are trying to set things right, readjust and reorganize. We are here calling for the related organizations to take necessary measures as soon as possible to control and eliminate the pollution and public harm in the electromagnetic field. Let's make radio technology better serve the promotion of the four modernizations in our country.

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OPTICAL FIBER LASER COMMUNICATION SYSTEM

Beijing GUANGMING RIBAO in Chinese 25 Apr 80 p 4

[Photograph and Caption]

A 5.7 km long experimental section of an optical fiber laser communication system built by the Institute of Laser Communications of the Ministry of Posts and Telecommunications has been initially completed. This is currently the longest experimental laser communication section in China. It can be used for communication by telephone, and for letter or image facsimile.

The photograph was taken by XINHUA reporter, Yu Chengjian [0060 3397 1696].

CSO: 5500

BRIEFS

CENTRAL VISAYAN TELEX NETWORK--Cebu City--The Bureau of Telecommunications has recommended a P75-million outlay for the Central Visayas regional development and investment program to enable the bureau to set up additional telephone and telex network in the region. According to bureau officials, the facilities of the government communication system in Central Visayas are inadequate and cannot compete with those of private communication networks in the region. The amount, the bureau said, will be used in the construction of additional telephone exchange and stations linking Cebu, Tagbilaran and Dumaguete cities and other major towns in the region. [Text] [Manila PHILIPPINES DAILY EXPRESS in English 26 Mar 80 p 2]

CSO: 5500

BRIEFS

CHILEAN TELEVISION SETS TO ARGENTINA--The Chilean radio and television industry will sell 70,000 color television sets to Argentina. This operation has a value of $21 million. These sets are assembled in Chile, and 25 percent of their parts are Chilean-made. [Text] [Santiago Chile Domestic Service in Spanish 1730 GMT 18 Apr 80 PY]

CSO: 5500

BRIEFS

TELEPHONE LINES--The National Telecommunications Company (ENTEL) has signed important agreements with the provinces of Santa Fe, Misiones, Corrientes and Chaco for the installation and enlargement of the automatic telephone system. There will be 13,502 new automatic telephone lines in these provinces. [Text] [Buenos Aires LA NACION in Spanish 19 Apr 80 p 14 PY]

SATELLITE TRACKING STATION--The Argentine Air Force commander officially opened this morning in Mar Chiquita a satellite tracking station. This new station will provide Argentina with more effective data to evaluate and study natural resources. The tracking station was built by the National Space Research Commission. [Text] [Buenos Aires Domestic Service in Spanish 1600 GMT 16 Apr 80 PY]

CSO: 5500

BRIEFS

MOZAMBIQUE-SWAZILAND TELECOMMUNICATIONS--Four additional semi-automatic telephone networks between the People's Republic of Mozambique and the kingdom of Swaziland were inaugurated yesterday at 1005 hours. Mozambique's minister of posts, telecommunications and civil aviation and Swaziland's minister of public works and communications had a 15-minute conversation, during which the Mozambican minister noted that the efficiency of the new networks is one more step in the consolidation of relations between the two countries. The Swazi minister praised the rapidity with which the new installations were made and expressed the hope that more initiatives will be taken in this field. In another development, it should be noted that a direct relex service between the two countries will soon become operative. Telex traffic has so far been transmitted through South Africa by a semi-automatic system. The establishment of a direct telex line will reduce the costs for this service since transit through South Africa will be by-passed. [Excerpt] [Maputo NOTICIAS in Portuguese 29 Apr 80 p 1]

CSO: 5500

BRIEFS

AMUR OBLAST TV RELAY--Another Ekran system television relay station has gone into operation in (Yuzhnyy Ulch) settlement. Builders of the bridge over the Zeya reservoir and railway troops have been given the opportunity to view central television programs. This is the fourth relay station of its type commissioned in the oblast this year. The next one will be commissioned in Olekma. Specialists from the oblast radio and television transmitting center left for Olekma yesterday to install the equipment. [OW271529 Blagoveshchensk Domestic Service in Russian 1000 GMT 24 Apr 80]

KUSTANAYSKAYA OBLAST TV RELAY--Kustanay--Relay apparatus has been commissioned in the settlement of Kusmurun. The inhabitants of Semiozernyy rayon and the greater part of Karasuskiy rayon now watch both central and republican television programs. In order to extend the zone of assured television reception in Borovskiy, Leninskiy, Uritskiy and Komsomolskiy rayons a Kustanay-Leninskoye radio relay line is being constructed and the existing Troitsk-Kustanay line is being reequipped. [G. Polyakov] [Text] [LD251601 Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 6 Apr 80 p 4]

CSO: 5500

EARTH SATELLITE STATION TO START OPERATION

Nicosia THE CYPRUS WEEKLY in English 18-24 Apr 80 p 1

[Text] Cyprus's earth satellite station will go into action for the first time tomorrow night to help bring live to Cypriot TV viewers the Eurovision Song Contest from The Hague.

A CYTA spokesman said yesterday: "The station is ready for full operation. Tests carried out since last month have proved most successful.

"Our monitoring station has even received colour TV signals and the pictures were extremely good."

The Eurovision song contest transmission, which will start at 10 pm and continue for 2 1/2 hours, will cost Cyprus more than 10,000 dollars.

Wimbledon

A number of other events in Europe will be transmitted live in the coming months. These include football finals, the Monte Carlo Rally and the Wimbledon tennis championship.

But an official spokesman warned the public not to be too demanding because the costs involved are extremely high.

The "Makarios" station has been built at Kakoradjia, half-way from Nicosia to Limassol, at a cost of 3,250,000 pounds sterling. According to the feasibility study, it is earmarked to earn CYTA one million dollars a year.

'Intelsat'

Its antenna is pointed towards the satellite "Intelsat" which maintains a steady position 26,000 miles above the Atlantic.

Intelsat is a world consortium of telecommunications authorities in which CYTA has a small share.

The Kakoradjia station will be manned by some 25 people, most of them technicians, all Cypriots.

CSO: 4920

ELECTRONIC MAIL EXPERIMENT TO BEGIN IN JULY 1980

Munich SUEDDEUTSCHE ZEITUNG in German 14 Apr 80 p 19

[Article by Gerhard Hennemann: "Post Office Wants To Transmit Letters Electronically"]

> [Text] Bonn, 13 April--The German Federal Post Office will begin a large-scale experiment regarding the electronic transmission of letters on approximately 1 July. The SZ has heard that during the 1-year experimental phase letters, sketches, forms and other documents can be transmitted to the receiving post office within a few minutes, and can be delivered to the addressee immediately after reception by special delivery. Should the experiment prove successful, coin machines will be installed in all of the larger post offices for self-service teletransmission.

The incentive for the experimental electronic letter transmission came from the introduction of the telefax-service that provided for the electronic transmission of letters, sketches, graphs, blueprints and wiring diagrams and dispatch documents, etc. over conventional telephone lines. The post office wants to use the electronic mail service to fill a gap in the market in the transmitsion of urgent messages in their original form in a few minutes across hundreds of kilometers. The electronic mail thus enters the gap between the telegram and teleprinter which allow merely for the transmission of alpha-numeric symbols. Obviously, the Post Office hopes that among private and industrial customers there is a need for such a rapid transmission of data.

According to reliable information, the Ministry of Post has reached the following point in its plans:

--The Post Office will accept messages for electronic transmission in some 600 post offices during the experimental phase. During the experimental phase that will be limited to weekdays, the postal authorities will use the already existing telecopiers that have been used for the exchange of internal management information. The relatively low speed of these machines--approximately 3 minutes per DIM A 4 size page--will result in a correspondingly high cost calculation for this service. The postal authorities are still refusing to give concrete information about the fees during the experimental phase, but experts indicate that the fees for the transmission of DIN-A-4 page (including delivery) will not differ markedly from those of the Swiss postal service. That agency is currently experimenting with a similar service and is charging 8 francs for the transmission of the first and 3 francs for the transmission of every subsequent page. In other words, the fee should be around 10 marks per first page. Subsequent pages would be correspondingly cheaper, since the delivery costs will be reduced. The postal authorities are not divulging any information about the methods used to arrive at the given fee. According to reports, a daily quota of 1,000 electronic letters has been used as a basis of calculation.

--The process will be approximately as follows: The sender delivers his message to the post office, where it will be provided with an address (should that be lacking). After transmission, the customer receives the original back. The delivery of the electronic message can occur in three ways: 1. Normally, the teleletter will be placed in an envelope immediately after its receipt (with postal confidentiality maintained), and is transmitted to the addressee immediately per messenger. 2. If desired, the addressee can be telephonically informed of the arrival of the message, so that he can pick it up personally in case of extreme hurry. 3. Should the addressee have his own telecopier connection, the teleletter will be transmitted to him immediately. This case represents the ideal of the postal authorities as far as the reduction of the high delivery costs of the letter and telegram service are concerned, both of which operate with large deficits.

A particularly interesting field for application of the electronic mail lies in the international and especially in the intercontinental sphere (the so-called "Intelpost" experiment). The postal authorities of Belgium, France, England, the Netherlands, Switzerland, and the FRG discussed these possibilities concretely as early as the end of the year. Extra-speedy facilities permitting a transmission and reception of a DIN-A-4 size page every 10 seconds are to be installed within Europe as well as the United States, where a similar experiment is being planned.

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LAST MANUAL EXCHANGES RETIRED; PHONE SYSTEM FULLY AUTOMATED

Helsinki HELSINGIN SANOMAT in Finnish 26 Mar 80 p 8

> [Text] Pello--The Finnish telephone system is about to come to the end of an era. The last manually operated exchanges in Pello, Kolari and Ylitornio are due to be discontinued today.
>
> The automation of the telephone system has spelled a change of job for about 5,000 telephone operators through the years. There are still about 400 operators without a new job. In small communities, the alternatives have often been either to move to where the work is or to remain unemployed.

The full automation of the phone system finishes a task the Postal and Telegraphic Department set for itself 10 years ago. The network was intended to be completed by the end of the past decade. This goal was achieved 3 months behind schedule. Besides Pello, Ylitornio and Kolari, Korppoo was also a "late joiner" of the automated system last weekend.

The official day of celebration for the automated system is April 1st, when Pello is going to connect the last manually operated phone call to the president.

The automation of the phone system has been a major task. Based on the current value of the mark, its value is estimated at nearly 20 billion marks. Norway is now the only Nordic country that does not have a completely automated phone system.

Beginning in the 1920's

Automation began in Finland in the 1920's. Helsinki was the first community to give up the "crank" phones. The construction of the remote connections lagged until 1955, when connections from Helsinki to Vihti and Lohja were completed.

Graduate engineer Erkki Kytonen from the Postal and Telegraphic Department says that automation was rather slow in the beginning. Actually, systematic automation of the long distance system only started in the 1970's," Kytonen says.

Commercial and economic needs have been mentioned as one justification for automation.

"On the other hand, if everything was done manually, today we would need as many as 700,000 telephone operators," Kytonen says.

The Postal and Telegraphic Department also argues for automatization with the fact that for every lost manual operator job, 20 new jobs are created in the economy by improved telephone connections. "The telephone system has been calculated to be the third-most important factor for business enterprises," Kytonen mentions.

In the countryside, the effect might be the opposite because of the loss of the operators' jobs.

"Placement Officials" Looking for Work

Fifteen full-time "placement officials" have been involved in finding reemployment for the discharged persons. According to Pirkko Hirvonen, chairman of the Telephone Officials' Union, this would not have been done without pressure from the union. By this time, the majority of the 6,300 telephone operators have been re-employeed. According to Kytonen, there are somewhat more than 400 persons unemployed at the moment.

Nearly 2,000 employees have been placed "inside the firm," that is, given new responsibilities within the Postal and Telegraphic Department.

Somewhat over 1,000 of those are now operating in different service centers in the so-called "remnant" manual connections. These remnant connections include service centers, alarm responsibilities, car and boat connections and international connections.

There have been 1,222 persons taken in by the state and municipalities, and only 173 operators have been employed by private businesses.

According to Erkki Kytonen, all regular telephone operators have been offered reemployment. In addition, most of the temporary workers who had been employed as substitutes for the regular operators during the transition phase, have secured a steady job through the automatization.

"The temporary workers have actually placed even better than the regular workers, because they are able to move from place to place with the job because of their youth," says District Director Jaakko Peltola from Pello.

For Many, a Move Is Necessary

Inkeri Enbuska, 45, came 6 years ago to be a temporary replacement for the regular operator, now already reemployed. She intended to work only for the length of the automation period. For her, automation brought a regular job at a servicing counter of the telephone center. Anja Yrjanheikki, 24, who had been employed as a substitute also, had the same good luck.

Kerttu Matinlompolo served as a temporary operator for 3 years. So far, she has found no new job.

"It might be possible to find work in Rovaniemi, but that is 80 km from Lakojarvi. However, I'd even do that rather than remain unemployed," Kerttu Matinlompolo figures.

According to Jaakko Haapala, chief of the Pello telephone district, telephone operators from Tornionjoki river valley have gone to work all over Finland. Some have stayed in the area, at risk of being unemployed, mostly because of family ties. "One operator, for instance, who will soon be unemployed, has been working in the firm for 23 years. She could not, and did not want to, leave the community to search for work," Haapala says.

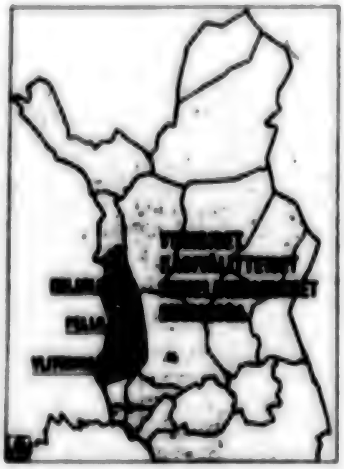
Pirkko Hirvonen, chairman of the Telephone Officials' Union, thinks that leaving such long-time employees unemployed is an irresponsible act by the state.

Car Phones Bring Employment

According to Erkki Kytonen, the manually operated car phone centers are going to be operating at least until the next decade side by side with automated car phone system. These centers provide employment for many operators. In southern Finland, car phone calls will be automated during 1982. All car phones are due to be included in the automated system by 1987. Because of the high cost of the car phone equipment, manual operations will be preserved alongside the automated system at least until the 1990's.

According to Kytonen, the car phone system needed automatization not least because the number of users of the present network is at its limits.

"The network was planned for 20,000 users, and this number already has been reached," Kytonen says.



[Map] The last manual exchanges in Finland

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FIRST TELECOMMUNICATIONS SATELLITE FOR DOMESTIC USE

Paris SCEINCES & AVENIR in French Mar 80 pp 83-87

[Article by Albert Ducrocq: "France's Satellite"]

[Text] The success of the first launch of Ariane might have led to the elimination of certain experimental launchings scheduled for this year. That is not so, because the researchers believe that they never have enough experience with the behavior of a rocket that can be acquired precisely with test launchings. Thus, already this year, with the fourth experimental launch (L04) of Ariane, the European Space Agency will launch its first communications satellite, satellite number 1 of the MARECS [Maritime Experimental Communications Satellite] series. It is being assembled at present, at Stavenage, because this maritime satellite, dear to the British, was formerly called MAROTS [Maritime Orbital Test Satellite].

In its operational phase, Ariane will launch some Intelsat V satellites for the international Intelsat organization, in 1981 and 1982. The rocket will insert European communications satellites ECS 1 and 2 into geostationary orbit. It will insert, still for the European Space Agency, two more MARECS in addition, undoubtedly, to Arab satellites (ARABSAT) and an Indonesian satellite (PALAPA). It will be used for launching the Telecom 1 satellite belonging to a specifically French program.

Although it is natural for the French to use on their account a rocket that they have literally sponsored and whose success is by far due to them, it must be pointed out that, legally, Ariane is, however, a European rocket. But it has always been specified that the member countries of the European Space Agency would be free to use this rocket for their national programs. France will be the first member country to make use of this possibility, for the purpose of inserting a domestic communications atellite into geostationary orbit for its own account.

Offhand, this kind of choice may cause amazement. Assuredly, several countries are right now using domestic satellites. This is the description given to satellites whose exclusive use is reserved by a country for its domestic communications. (On the other hand, a satellite is called regional, if it is used by several neighboring countries that have entered into an agreement for this purpose, while a satellite is called international, if no matter what member country of the Intelsat organization may use it). It appeared very early that space transit allowed new possibilities, especially in countries with a vast area whose ground equipment would not make it possible to cope with demand. Historically, the Soviet Union was the first country to provide itself with a network of domestic satellites with the Orbita system served by Molniya I satellites (while Molniya II satellites have been designed to handle international communications also). Domestic satellites proved to be still more advantageous to Canada, whose 22 million inhabitants are scattered over a territory of 10 million square kilometers. It was adopted by the United States. And real communications were able to begin to be established between the 1,300 islands in the Indonesian archipelago by means of it. The first Indonesian satellites -- the Palapa A 1 and 2 -- were launched by the Americans in 1976 and 1977. Palapa B satellites might be launched by the European Ariane rocket.

All these countries had to cope with problems of distance or geography that did not permit the establishment of a network on the ground with adequate traffic capacity.

Great Flexibility

Thus, France (followed closely by Japan whose ambitions in this field are known to us) is going to be the first "compact" country to bring space into play in its communications system. Is this kind of solution justified from an economic point of view?

If account is taken only of the cost of communications by space, which, at present, is lower than the cost of landline communications when the distance exceeds 700 kilometers, it might be possible to answer positively immediately. Those distances represent a certain fraction of French communications, a small fraction, it is true.

But there is something else. Use of a satellite is advantageous, owing to the flexibility of communications that it provides. In fact, it makes it possible to establish "a la carte" communications between any centers whatsoever, and, therefore, to cope with traffic peaks that would be very expensive, if an attempt were made to set up the corresponding infrastructure on the ground.

For example, let us consider two centers A and B separated by a distance of 500 kilometers. First of all, there is a direct connection between these centers, whose capacity we agree represents 1,000 telephone lines, for the sake of clarification. Let us assume, then, that, at a given time, there are 1,100 calls. It will, perhaps, be possible to handle them by means of triangular communications, by routing them through third centers C, D or E. But then the connection will be more expensive. The cost will be the cost of communications over distances of 700 or 800 kilometers, for which the satellite will be more advantageous. Finally, let us imagine that an exceptional event requires 1,300 or 1,400 lines between A and B. Then it is impossible, with all the land means brought into play, to meet demand, while the satellite can do so. In fact, it would be absurd to set up 300 or 400 additional lines between A and B, which would be used only episodically, because the cost of communications would be excessively high.

On the scale of a country like ours, this is one of the advantages of the domestic satellite: making a saving possible in the establishment of ground networks, thus making it possible to estimate them at the minimum, in a normal system. It is a fact that it is possible to cope with peaks very simply, thanks to space. Thus, on 10 June last year, at the time of the European elections, the whole network between Paris and Strasbourg was saturated. The French, then, resorted to a Symphonie satellite to create emergency lines temporarily. Therefore, in comparison with a conventional network, a communications satellite will play the same role as a dam for the distribution of electricity.

But the 1,000 telephone channels offered by the four Telecom I repeaters will be used for "peaks" only on an emergency basis. Most often, they will be used for missions coming out of the metropolitan framework. Three of these repeaters (F1, F3, F4) will, in fact, be connected with an antenna of the semiglobal type with parabolic reflector (0.9 m x 0.7 m), with offset source and a 0.47-m focal distance. This antenna will cover a very large part of the visible hemisphere, from the point on the geostationary orbit where Telecom I will be anchored (straight above a point on the Atlantic, by 10°W). This semiglobal area will make possible communications with:

Part of southern Europe (France, Europe, Italy).

All of Africa, including Madagascar.

The Brazilian tip of South America (region of Natal).

For those regions, Telecom will act like a satellite with a very extensive regional nature with an apparent radiated power or PIRE [Effective Radiated Power] (product of the power of a transmitter multiplied by its radiation pattern) greater than 26.8 dBW. These three repeaters will transmit between 3,700 MHz and 3,740 MHz (F1), between 3,890 MHz and 3,930 MHz (F3), between 4,075 MHz and 4,195 MHz (F4). A horn antenna with a 23.5-cm opening for a length of 38 cm will be connected to these repeaters, making global reception possible on the following frequencies: from 5,925 to 5,965 MHz, 6,115 to 6,155 MHz, 6,300 to 6,420 MHz.

The fourth repeater (F2), in turn, will transmit between 3,755 and 3,875 MHz, beamed to French Guiana and the Antilles, by using a parabolic reflector antenna (1.3 m x 0.7 m, that is to say, with a focal distance of 0.7 m), called Spot 2. This will make possible a PIRE on the ground greater than 37.4 dBW. With Standard B type Intelsat stations (antennas with a diameter of 11 m), a 120-MHz channel can be permanently assigned to communications beamed at French Guiana and the Antilles. Two 36-MHz channels will enable them to receive television programs. Communications between metropolitan France and the overseas department will, therefore, be ensured under extremely comfortable conditions of which the Guiana Space Center will be the first beneficiary.

A military payload entrusted to Telecom 1 will also involve communications of a rather conventional type. It will use for transmission (in the 7-GHz band) a horn antenna with a 20-cm opening and a length of 32.1 cm and for receiving (in the 8-GHz band) a horn antenna with an 18.2-cm opening and a length of 29.5 cm.

Integrated Telecommunications

But Telecom 1 is especially going to inaugurate a new kind of communications, essentially digital, announcing integrated communications.

Historically, the first lines of communication between men were created by the telegraph. It involved transmission of a series of characters for whose representation Morse had proposed the alphabet that was to immortalize him. Traffic flow was conceived in terms of the performance of good operators. It became customary to transmit six to seven characters a second. In view of the number of signals needed for one character, that represented around 40 information units, or bits, a second, using today's computer specialists' language, or, if preferred, 40 bauds.

Then, telephone lines came into being to transmit analog information. When we speak in front of the diaphragm of a microphone, a variable current is produced. Its shape reflects the sounds. Experience teaches that when a line transmits 1,000 bauds, it makes satisfactory reproduction possible. That was the standard decided on. With 400 bauds, communication is bad, scarcely audible. On the other hand, with 3,000 bauds, you have the impression that the other party is in the next room. With 20,000 bauds, you transmit great music.

Development of the telephone led to the installation, on the main lines of communication, of heavy-traffic lines to transmit simultaneous communications whose unmixed transmission could be ensured with the multiplexing technique. These heavy-traffic lines could be used to transmit pictures. Proper transmission of television programs requires roughly 1 million bauds. Otherwise, the operation brings into play 1,000 telephone lines. It is conceivable only where lines with a sufficiently high rate of flow have been installed for telephone purposes.

Disregarding the 9,600-baud network, which is beginning to come into existence, at present, on certain main lines to serve computers, conventional telecommunications on land still depended on the telegraph network (which became telex with a flow rate of some 80 bauds) and the telephone. Therefore, all attempts made to develop new means of communication had to adjust the information to these networks.

Everything changes, if, instead of adopting analog communications, recourse is had to digital communications and space is used.

Yesterday, the telephone was analog. It can become digital by abandoning transmission of the current curve coming out of the microphone and limiting itself to transmitting samplings. For example, it is decided to measure the intensity of this current 8,000 times a second and to send the signal representing, in binary notation, the results of this measurement over the line. And everything accordingly. Telemail, telefilm, teleconference, telecopying can also give rise to digital information. With regard to teleprocessing -- this procedure consisting in transmitting signals furnished by data banks or to be sent to computers for transmission of their results -- it involves sending information that is digital by nature. We can speak of integrated communications as soon as any kind of information is passed on by a broad channel. The transmission system does not even have to know the nature of this information. It is solely the concern of the sender and the recipient. This is true of standardized digital information. Because the door is open to every invention in the field of communications, we are free to dream up any new form of communications without having to yield to yesterday's restrictions.

Second event: the space channel. It is possible to transmit, by satellite, traffic flow that will exceed by far the megabaud (million bauds) that was still the prerogative yesterday of the heavy-traffic-flow lines of certain privileged main lines.

Mission of Telecom

The teleprocessing mission of Telecom will be to transmit digital signals by means of a group of six repeaters R_1 to R_6. They will transmit between 12.504 and 12.750 GHz, while the signals will be received between 14.004 and 14.150 GHz, primarily for communications within metropolitan France. The area of coverage for this teleprocessing mission will actually be reduced to an ellipse whose large axis will correspond roughly to a line connecting Manchester to the northern end of Corsica (hence the possibility, in case of necessity, of associating southern England to the teleprocessing experiment that Telecom 1 is going to make possible). The small axis of this ellipse is near a Luxembourg-Pamplona line. This result will be achieved, because two narrow-field antennas (2.1° x 1°) aimed at a very specific point on the earth's surface, by 3°E and 45.7°N will be connected to repeaters R_1 to R_6.

Two identical antennas, Spot 1 and Spot 2, with a parabolic reflector will be involved. Spot 1, with an offset source, will be used, on the one hand, for transmissions of even channels, and, on the other hand, for receiving all the teleprocessing signals (for which the principle of linear polarization was decided on). The mission of Spot 2 will be double: this antenna will be used for transmissions of odd conventional teleprocessing channels. Moreover, as we stated above, it will handle communications with French Guiana and the Antilles by means of a second offset source to be connected to it.

This use of Spot antennas is justified by the objective of the teleprocessing mission itself: to enable French companies to become familiar with the techniques of integrated communications by space. It is immediately possible to imagine the advantage that may be drawn from a concentration of signals on a very small part of the globe. In the teleprocessing frequency band, the PIRE will amount to 49 dBW, so that reception on the ground will be possible with small-sized collectors. The Thomson Company has developed, for users, a 3-m antenna that is going to be produced, initially, in about 100 units. It will suffice to place it in a plant yard or on the roof of a building, in order to benefit from the teleprocessing services of Telecom 1.

These will be services with a very high flow rate. In fact, it should be pointed out that it will be possible to transmit, by means of each Telecom 1 repeater, 25 megabauds, representing 150 megabauds for the teleprocessing part of the satellite, or, roughly, a flow rate equal to 150 times the rate provided by the universal conventional mission.

With this kind of teleprocessing flow rates, it is difficult to see the need for maintaining conventional communications. Just as the custom was established of "telephoning" telegrams as soon as telephone lines began to connect centers, a similar development can be anticipated.

In the future, integrated communications will dispense with using conventional networks and that will make a change in companies. As soon as the various establishments of a company are connected by a teleprocessing satellite, sound communications, documents, data will be transmitted systematically by means of it. This will be the basis for an entirely different organization. To make a comparison, imagine the change in situation experienced by a plant that is suddenly served by a highway, after having been far from any means of communication for a long time. Now, the communications satellite provides an information highway that, if it is desired to make a comparison with land transportation, can be regarded as equivalent to a highway, an air connection, a sea canal and several railway lines all brought together.

It is not a matter of companies canceling overnight their telephone subscription, doing without postal services and, in general, abandoning present methods of communications to entrust everything to a Telecom satellite. Several years are going to elapse, during which intercompany communications by space will be experimental in nature. In the future, considerably vast changes are promised. The synarchy of companies and organizations that will have been equipped for total integrated communications by space must be counted on.

Telecom 1 has to remain in its station in geostationary orbit, in order to perform its task. This will oblige it to make correction episodically to compensate for an inevitable drift and also to maintain its attitude for which strict maintenance is indispensable, especially for the teleprocessing mission. The Telecom 1 propulsion system will consist of a so-called "high-level" engine creating a 2-N thrust (generating an impulse of 21 cm/s for 1 minute of operation) and a low-level engine creating a 0.75-N thrust (impulse of 7.87 cm/s). These engines, furnished by ERNO [(FRG) Northern Development Center], are fueled by nitrogen-pressurized hydrazine.

The specifications stipulate that the antenna aiming must be guaranteed at approximately 0.14° in roll and pitch and approximately 0.33° in yaw. That entails using sensors (an infrared terrestrial sensor, a solar acquisition sensor, solar and terrestrial elevation sensors), an inertia wheel and a gyrometric housing, with the pertinent electronics (both for measurements, piloting and power control).

The propulsion system will consume all the less, the more accurate is the orientation control. Consequently, the fluid reserve must be provided for the duration of the whole service. In principle, the Telecom 1 satellites should operate for 7 years. It is possible, however, that a life of only 5 years will be decided on for the first Telecom 1.

All the functions of maintaining the satellite in the proper place with the correct orientation will be performed by means of the equipment the whole of which will be a service module.

Telecom 1 will, in fact, depend on a modular design. The various parts of the satellite will represent the same number of independent components, in accordance with a formula using tested techniques. This modular design is, in fact, the one that MATRA [Aeronautical Constructions Equipment Company] had occasion to develop when it created the platform for the OTS [Orbital Test Satellite] with which the ECS European communications satellites were equipped, on the one hand, and, on the other hand, the MARECS maritime navigation satellites, whose new designation is justified by the fact that, precisely, they are constructed in accordance with the same modular structure as the ECS with the same platform, designed for 100-kilogram to 150-kilogram payloads that we shall encounter on the Telecom 1 satellites. Created on the basis of a hexagonal prism, this platform represents the essence of the satellite. The communications module, in the shape of an upsidedown U, forms, in a certain way, its cover and lateral surfaces.

Finally, a third module, is the power supply, consisting of two large wings, each having three panels. They will give the satellite a wingspread of 13.79 m. These wings are tiled with photoelectric cells. This panel, built by Fokker AEG, will provide electric power in the neighborhood of 1 kW. This power should represent 939 W at the solstice and 1,012 W at the equinox.

Half an Ariane

The communications module, which is the specific paylod of the satellite, weighs only 120 kilograms in the present version of Telecom 1, whose propulsion module represents 338 kilograms. If the 116 kilograms for the other equipment are added to this, the total weight of the satellite is 574 kilograms. This will be the mass in geostationary orbit.

At launching, the satellite will be connected with its apogee motor (for generating an impulse in the vicinity of 1.5 km/s required for inserting in circular orbit at 35,800 kilometers). A 444-kilogram motor is involved, to be furnished by the American Thiokol Company, so that the mass in transfer orbit will amount to 1,018 kilograms.

It will be observed that these values will be far from exploiting the capabilities of the Ariane rocket, which, without even waiting for the models in process of development at present, is capable, at present, of inserting over 1.7 metric tons in transfer orbit to insert 1 metric ton in geostationary orbit. In other words, Telecom 1 will require half an Ariane rocket. The satellite will be launched with the developed versions of the European rocket, right now in process of development, not alone but at the same time as another satellite, thanks to the so-called Sylda structure, developed by the Aerospatiale Company for this kind of twin launchings. Sylda will look like a large envelope within which Telecom 1 will be housed, while the upper part will form the platform on which another satellite will be placed, in this case Meteosat, at the time of the launching of the first Telecom 1, in December 1982, which will be called Telecom PV 1 (PV for ProtoVol [Protoflight]) and undoubtedly an export ECS when Telecom MV 2 (MV for Modele de Vol [Flight Model]) is launched in July 1983.

Because the Europeans have a rocket making it possible to insert a metric ton into geostationary orbit, why not use all that mass? Was it necessary to miniaturize Telecom 1? Of course, because the policy consisting in "doing what one likes" in space would be the most deplorable one possible. It would lead to poor work and would be ruinous. As soon as a satellite like Telecom 1 could be built with less than 600 kilograms with French technology, the authorities should adhere imperatively to that weight, which, by requiring only half a rocket, offers the advantage of requiring only half the cost of a launching, or 70 to 90 million francs instead of 140 to 180.

The difference is appreciable, if thought is given to the economic stake. Space communications will develop, if they are financially advantageous. This is the case, as we have said. But then a market problem comes up. Those who build a satellite for a specific purpose have possible customers in view. And the French are not alone in offering teleprocessing satellites. In the United States, the IBM Corporation had Hughes manufacture a series of satellites called SBS [Satellite Business System], the first units of which would have been put in service this year, if the schedule had been respected.

Telecom 1 and SBS will be very different in design, if only because the French satellite is stabilized on three axes, while, loyal to its tradition, Hughes has retained the principle of spin stabilization. Moreover, differently from SBS, which will be used only for teleprocessing, Telecom 1 will be a multiple-function satellite. This should draw more customers to it. Commercial competition, however, promises to be severe and, from this point of view, cutting the cost of launching in half by using half an Ariane is a major success factor.

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BRIEFS

FRENCH RADIO AMATEUR SATELLITE--Paris--The first French radio amateur satellite -- Arsene -- will be built in the next few years to be launched in 1984-1985 by the Ariane rocket, as was stated on 22 February by the French weekly AIR ET COSMOS. This project of the Space Radio Amateur Club (RACE), under the high patronage of President Giscard d'Estaing, is intended for training engineers and technicians. Operating on the frequency bands reserved for radio amateurs by the International Telecommunications Union (ITU), this satellite, weighing from 100 to 120 kilograms, will be capable of retransmitting the results of a scientific experiment to be performed by young persons' space clubs. Access to the Arsene (Ariane-Radio Amateurs Satellite for Space Instruction) satellite will be open to radio amateurs all over the world and to instructors in engineering schools and universities who will use it to make demonstrations and to conduct practical exercises. The satellite will be built in 2 years by French radio amateurs, supported by the National Center for Space Studies (CNES) and several large companies and public agencies. [Text]

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